

REMARKS

Claims 2 – 12 and 14 - 25 are pending in the application. Applicants amend claims 1 and 14, and add new claims 26 and 27. No new matter is added. Support may be found, for example, in Applicants' specification at page 18, line 22 through page 19, line 17.

ALLOWABLE CLAIMS

Applicants thank the Examiner for indicating that claims 7 – 11, 19 – 23 and 25 are objected to as being dependent on rejected base claims 2 and 14, but that each would be allowable if rewritten in independent form to include all of the limitations of its base claim and any intervening claims. Applicants amend independent claims 2 and 14, and for the reasons presented below, respectfully submit that amended independent claims 2 and 14 are allowable.

As claims 7 – 11 depend from allowable claim 2 and claims 19 – 23 and 25 depend from allowable claim 14, Applicants submit that claims 7 – 11, 19 – 23 and 25 are also allowable for at least this reason. Accordingly, Applicants respectfully request that the objection to claims 7 – 11, 19 – 23 and 25 be withdrawn.

REJECTION UNDER 35 U.S.C. §§ 102, 103

Claims 2, 3, 5, 12, 14, 15, 17 and 24 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,501,804 to Rudolph et al. Claims 4, 6, 16 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rudolph. Applicants amend claims 2 and 14 to further define the nature of their invention, and respectfully traverse these rejections.

In amended independent claims 2, for example, Applicants disclose

2. A noise canceling method comprising the steps of:

periodically inserting a zero-point into a signal on a transmission side,

establishing synchronization based on a received signal,
extracting the zero-point based on the established synchronization and
interpolating a noise component of the received signal, and
subtracting the noise component from a received signal.

As described in Applicants' Response of October 18, 2004, Rudolph describes in col.1, lines 65-67 a pseudo-random test sequence which "is sufficiently long and has no direct component". In addition, Rudolph recites in claim 1 that the test sequence (T) and the modulated digital signals (D) are transmitted in a periodic alternating fashion, the test sequence is averaged at a receiver end so as to detect a noise carrier, and the noise carrier is subtracted from the demodulated digital signals at the receiver end. Rudolph relies on the fact that the test sequence has no direct component to result in a canceling of the test data through averaging, such that the remaining noise component is identifiable.

In sharp contrast to the method of Rudolph, Applicants teach a noise canceling method in which a zero-point is periodically inserted into a signal, a noise component is interpolated from a received signal by using the zero-point, and the noise component is subtracted from the received signal. As indicated in amended claim 2, in a receiver receiving the signal with zero-points inserted, synchronization is established and used as a means for extracting the zero point components of the signal, for the purpose of interpolating a noise component of the received signal which can then be subtracted from the received signal (see, e.g., Applicants' FIG. 7). Applicants respectfully submit that the method of Rudolph does not teach Applicants' claimed zero-point extraction step based on synchronization of the received signal.

Accordingly, Applicants submit that the method of amended independent claim 2 is not anticipated by Rudolph, and that amended independent claim 2 is therefore allowable.

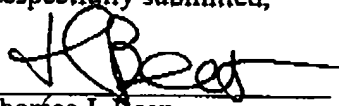
Applicants apply the same arguments with respect to amended independent claim 14, which also includes limitations requiring zero-point extraction step based on synchronization of the received signal, and submit that independent claim 14 is allowable. As claims 3 - 6 depend from allowable claim 2 and claims 15 - 18 and 24 depend from allowable claim 14, Applicants respectfully submit that claims 3 - 6, 15 - 18 and 24 are allowable for at least this reason.

CONCLUSION

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 2 - 12 and 14 - 27, which include independent claims 1, 14, 26 and 27 and the claims that depend therefrom, stand in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,


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